REMARKS

Claims 4-8, 15-18 and 140-150 are pending. Claims 4-8, 15-18 and 140-150 have been amended to recite "an" activity instead of "the" activity. Claims 7, 140, 141 and 145 have additionally been amended to include the article "a", as in "a L16 protein." Claims 4, 5, 142 and 143 have additionally been amended to include a phrase that relates back to the preamble. No new matter has been added.

I. The Claims Are Clear And Definite

Claims 4-8, 15-18 and 140-150 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants traverse the rejection and respectfully request reconsideration of the same.

A. Claim 4

The Office Action alleges that claim 4 is indefinite because: 1) it is unclear what efp activity is increased; 2) there is no end result that indicates that a specific compound has been identified; and 3) there is no measurement step included in the "determining step".

With respect to the efp activity, one of ordinary skill reading the present specification would recognize that efp can stimulate the efficiency of the peptidyltransferase activity (see, for example, page 2, lines 14-15 of the specification). Thus, one of ordinary skill would understand that an increase in efp activity may include, for example, an increased ability of efp to stimulate the peptidyltransferase activity. In addition, "activity" of efp used in the present application (see, page 8, lines 19-24 of the specification) refers to a variety of measurable indicia suggesting or revealing binding, either direct or indirect; affecting a response (*i.e.*, having a measurable affect in response to some exposure or stimulus, including, for example, the affinity of the compound for directly binding efp or a ribosome, or, for example, measurement of amounts of upstream or downstream proteins or other similar functions after some stimulus or event). Thus, one skilled in the art having examined the specification would be able to determine whether a particular "activity" is within the scope of the claims. Indeed, any "activity" is within the scope of the claims.

Applicants are also not required to include the "end result" or the "measuring step" because the metes and bounds of the claim as recited are clear to one of ordinary skill. For example, one of ordinary skill knows that a measurement, for example a measurement of the "intrinsic fluorescence of efp" as recited in claim 4, may be compared to a control, or a baseline, wherein the control efp is not contacted by a test compound. (e.g., see Example 2). By comparing to a baseline, one would achieve the "end result" and "measurement step" called for by the Office Action. To advance prosecution of the present application, however, claim 4 has been amended to further recite "and wherein an increase in said intrinsic fluorescence of efp indicates that said compound increases said activity." Further, step (b) recites "by measuring". Thus, claim 4 is definite because it is clear what efp activity is increased, and it is not necessary to recite an "end result" or a "measurement step." Claims 5-8, 15-18 and 140-150 recite language similar to claim 4.

B. Claim 6

The Office Action alleges that claim 6 is indefinite because it is unclear what "other protein(s)" are and "what activities of the other proteins are affected..." Various proteins are known to be associated with efp and may be affected by a compound which increases the activity of efp. For example, Applicants teach examples of such "other protein(s)" in the specification, e.g, the L16 protein. The L16 protein (N-terminal fragment) of the 50S subunit is required for the efp-mediated synthesis of peptide bonds. Accordingly, the activity of the "other protein(s)", for example the activity of the L16 protein, that may be affected is the ability of the L16 protein to facilitate the efp-mediated synthesis of peptide bonds. Thus, one of ordinary skill in the art would be able to determine whether a particular protein is an "other protein(s) essential for the functioning of efp." One skilled in the art would also be able to determine whether a particular activity of a protein was within the scope of the claim. Indeed, any activity is within the scope of the claim.

C. Claim 7

The Office Action alleges that claim 7 is indefinite because the claim is missing a transitional phrase "a" L16 protein. Claims 7, 140, 141 and 145 have been amended to include the article "a"; thus, the rejection is now rendered moot.

D. Claims 140 and 141

The Office Action alleges that claims 140 and 141 are indefinite because 1) the claims do not recite whether modulation is upward or downward; and 2) the term "association" is not clear in the context of the claimed phrase "said L16 protein in association with efp".

With respect to modulation, Applicants reiterate that modulation can be either an increase or decrease. Indeed, Applicants teach at page 10, lines 12-13 of the specification that the term "modulates" means an increase or decrease. Applicants claims are not indefinite simply because they are not limited to an increase or decrease. One skilled in the art would be able to determine whether a particular compound increased or decreased the activity of prokaryotic efp. Thus, the claims are definite within the meaning of § 112. *In re Mercier*, 185 U.S.P.Q. 774 (C.C.P.A. 1975) (claims sufficiently define an invention so long as one skilled in the art can determine what subject matter is or is not within the scope of the claims). The Examiner has utterly failed to provide any evidence or reasoning why one skilled in the art would not be able to determine the metes and bounds of "an increase or decrease." Furthermore, Applicants request that the Examiner cites an authority (e.g., MPEP and/or case law) which indicates that the term "modulating" cannot be used in a claim because it can mean increase or decrease.

With respect to the term "association" one skilled in the art having examined Applicants' specification in proper context would understand that the L16 protein would be bound to or form a complex with efp and, thus, would be "in association" with efp. In such a complex with efp, the L16 protein could interact directly with efp or could interact indirectly with efp via other components of the complex. Also, the specification discloses that the L16 protein (N-terminal fragment) of the 50S subunit is required for the efp-mediated synthesis of peptide bonds (see page 2, lines 29-30 of the specification). Further, as pointed out before, Applicants teach at, for example, page 8, line 27 to page 9, line 3 of the specification, that the physical interaction between associated proteins can be described as "binding," which includes ionic, non-ionic, Hydrogen bonds, Van der Waals, hydrophobic interactions, etc. One of ordinary skill would understand that when efp "requires" the L16 protein, it is "in association" with the L16 protein.

In view of the foregoing, persons of ordinary skill would have no difficulty in determining whether a particular method meets the criteria recited in the claims. Accordingly, the

claims are definite within the meaning of § 112. *In re Mercier*, 185 U.S.P.Q. 774 (C.C.P.A. 1975) (claims sufficiently define an invention so long as one skilled in the art can determine what subject matter is or is not within the scope of the claims). Thus, claims 4-8, 15-18 and 140-150 are clear and definite. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 112, second paragraph be withdrawn.

II. The Claimed Invention Is Sufficiently Enabled

Claims 4-8, 15-18 and 140-150 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to provide an enabling disclosure. The Office Action cited various case laws (e.g., *Genentech v. Novo Nordisk A/S*, *Brenner v. Manson*, and *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*) to support the general contention that undue experimentation is required when there is no disclosure of any starting material or any of the conditions under which a process can be carried out, and that the failure to meet the enablement requirement cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art. (Office Action, page 9). Applicants traverse the rejection and respectfully request reconsideration thereof. No amount of undue experimentation is required to practice the invention.

More specifically, the Office Action relied on essentially 7 "factors" to conclude that the specification is not considered to be enabling without undue experimentation. These "factors" are: 1) how the compound is determined; 2) what the compound is; 3) what efp activity will be modulated; 4) what effect the modulation will have on the function of the efp; and 5) a specific assay and measurement steps to achieve all of the above; 6) "that the specification is not enabled for a method with an unspecified amount of compounds or method to identify compounds that increase the activity of efp *per se* as the specification does not exemplify such a method; and 7) "the claimed methods do not have endpoints/results that correspond to the preamble of the claims."

The enablement requirement of §112 is satisfied so long as a disclosure contains **sufficient information** that persons of ordinary skill in the art having the disclosure before them would be able to make and use the invention. *In re Wands*, 8 U.S.P.Q.2d 1400 (Fed. Cir. 1988) (the legal standard for enablement under §112 is whether one skilled in the art would be able to practice the invention without undue experimentation). In this respect, the following statement from *In re Marzocchi*, 169 U.S.P.Q. 367, 369-370 (C.C.P.A. 1971), is noteworthy:

> The only relevant concern of the Patent Office under these circumstances should be over the truth of any such assertion. The first paragraph of §112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance.
>
> As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented **must** be taken as in compliance with the enabling requirements of the first paragraph of §112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied upon for enabling support. (emphasis added)

Applicants submit that there is no reason to doubt the objective truth of the statements contained in the application.

The claims of the present application, drawn to methods of screening compounds that modulate efp, are properly tailored to this invention, as heretofore discussed and are, moreover, amply supported by Applicants' disclosure.

Applicants submit that **none of the "factors" recited in the rejection in the Office Action point out the non-enablement** of Applicants' claimed invention. To the extent that the factors are even relevant, they, in fact, point out the enablement of Applicants' claimed invention. To assist the Examiner in recognizing that the pending claims are fully enabled and that there would be no undue experimentation to practice the claimed invention, Applicants will now address each of the Office Actions erroneous "factors" which were used to support a conclusion of non-enablement and undue experimentation.

The factors identified as "how the compound is determined" (factor 1) and "what the compound is" (factor 2) are irrelevant to the analysis of enablement. Indeed, no compound is "determined" in Applicants' claimed invention. Rather, a compound that increases or decreases activity of efp is "identified" by performing the recited steps. Any compound can be selected and screened by the practitioner as desired. Further, as described above, one skilled in the art need not know what the compound is (e.g., name or description) to practice the claimed invention.

In regard to "what efp activity will be modulated," (factor 3) activity, as described above, is used in the present application (see, for example, page 8, lines 19-24 of the specification) to refer to a variety of measurable indicia suggesting or revealing binding, either direct or indirect; affecting a response (*i.e.*, having a measurable affect in response to some

exposure or stimulus, including, for example, the affinity of the compound for directly binding efp or a ribosome, or, for example, measurement of amounts of upstream or downstream proteins or other similar functions after some stimulus or event). Determining whether a particular compound binds to efp is indicative of whether the compound increases or decreases the activity of efp. Thus, Applicants provide ample guidance for practicing the claimed inventions. Applicants have also amended the claims to recite "an" activity rather than "the" activity.

The Office Action asserts that the methods or procedures include new *in vitro* methods as well as new *in vivo* methods. The Office Action further asserts that the specification provides "only examples and no specific assays" to accompany the claimed method. As set forth above, however, the specification provides numerous art-recognized assays (see, for example, page 15, lines 7-23 of the specification). In addition, one embodiment of Applicants' claimed invention (e.g., tryptophan fluorescence) is set forth in Example 2 of the specification. Thus, Applicants provide broad general teachings of assays, as well as particular working examples of carrying out the claimed invention.

The Office Action appears to suggest that Applicants must provide some indicia of how the claimed method is an improvement over the prior art. Applicants, however, are not required to provide any indicia of improvement. Applicants respectfully request that the Examiner point out authority for such an alleged requirement. The Office Action also asserts that it appears that the new method "encompasses a lot of old methods" and that Applicants are relying on art-recognized procedures for the "new" claimed methods. The assays employed in particular embodiments of the claimed invention, however, need not be new assays to render the claim inventions enabled. Clearly, if the Examiner is of the belief that "old assays" can be used to carry out the claimed invention, then the claims are clearly enabled. To the extent that it is even relevant in determining enablement, a "new" method, as used in the Office Action, can be "new" for a variety of reasons (e.g., new assays steps, new use, steps performed using a compound for which the steps have not been previously performed, etc.).

In regard to "what effect the modulation will have on the function of the efp," (factor 4) such information is not relevant to the enablement analysis. Indeed, one skilled in the art can identify a compound that increases or decreases the activity of efp without knowing what effect such an increase or decrease will have on efp. Indeed, Applicants are not required to recite the downstream effects of any particular compound on the activity of efp to enable the claimed

invention. Applicants need only enable the claimed invention. In any event, Applicants teach at, for example, page 4, lines 7-13 of the specification, that the methods of the invention can be used, for example, to screen for antibiotics. Because elongation factor p is essential for bacterial cell viability, one potential effect of decreasing the activity of efp is to identify compounds that can decrease cell viability (e.g., anti-bacterial agent).

In regard to providing a "specific assay and measurement steps," (factor 5) as described above (in section I of the present response), Applicants provide ample guidance for determining whether a compound increases or decreases the activity of efp. The Office Action admits that the claims broadly recite a method of identifying a compound that modulates the activity of efp (see, page 4 of the Office Action). Such broad teaching is clearly supported throughout the specification. In addition, the Office Action erroneously asserts that Applicants fail to provide "specific assay and measurements." As stated above, however, Applicants teach numerous specific assays (including, but not limited to, binding assays such as, for example, gel-shift mobility electrophoresis, Western blot, filter binding, and scintillation proximity assays, and by measuring the intrinsic fluorescence of efp; see, for example, page 15, lines 1-23 of the specification). Applicants also provide a working example of using tryptophan fluorescence to determine modulation of efp activity (see, Example 2).

In regard to the factor 6, the Office Action alleges "that the specification is not enabled for a method with an unspecified amount of compounds or method to identify compounds that increase the activity of efp *per se* as the specification does not exemplify such a method." Applicants remind the Examiner that the claims are directed to methods of identifying compounds that modulate, e.g., increase or decrease, the activity of efp. The nature of the invention is to identify compounds, any compounds, which would modulate efp. It is unreasonable for the Office Action to demand that Applicants specify what these compounds are, because the compounds can be unknown. Indeed, any compound can be screened by the claimed methods. The claimed inventions are directed to methods of identifying the very compounds that the Office Action is requesting the Applicants to identify.

Once again, Applicants will reiterate for emphasis: the present specification enables the screening of an unspecified amount/number of compounds. For example, any compound, e.g. any drug, can be screened in accordance with the methods recited in the claims. Also, all the methods recited in the pending claims are supported by Applicants' underlying assays (Examples

1-5). These Examples fully enable one of ordinary skill to practice the claimed inventions.

The Office Action indicates that the "information provided in the specification is exemplary and not limiting, and therefore does not breathe life into the claims." (Office Action, page 4). The Office Action is correct in observing that information, such as the examples, provided in the specification is exemplary and is not limiting. As such, one of ordinary skill will recognize that the claims do not depend upon any particular underlying assay employed. To this end, the assay may vary, and may even include, and indeed do include, assays not set forth in the specification. Further, the assay employed may be modified as the practitioner in the art sees fit.

The Office Action, however, recited an incorrect statement of law by stating that the "information provided in the specification" does not support the full scope of the claims ("breathes life into the claims") because the "specification is exemplary and not limiting." (Office Action, page 4). Again, Applicants reiterate that the enablement requirement of §112 is satisfied so long as a disclosure contains **sufficient information** that persons of ordinary skill in the art having the disclosure before them would be able to make and use the invention. *In re Wands*, 8 U.S.P.Q.2d 1400 (Fed. Cir. 1988).

Contrary to the assertions made by the Office Action, the present specification does contain **sufficient information** for one of ordinary skill to practice the full scope of the claimed inventions. For example, the five Examples in the specification provide ample "guidance/direction" for one of ordinary skill to practice the claimed invention. Moreover, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented **must** be taken as in compliance with the enabling requirements of the first paragraph of §112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied upon for enabling support. *In re Marzocchi*, 169 U.S.P.Q. 367, 369-370 (C.C.P.A. 1971).

The Office Action has not asserted any reason to doubt the objective truth that the specifications, e.g. that the Examples provided can be employed to screen for compounds which modulate the activity of efp. At most, the Office Action has concluded that the claims are not enabled based on the wrong premise of law. Thus, it **must** be taken that the claims are enabled and do not require undue experimentation.

In regard factor 7, the Office Action specifically states that, "[T]he claimed methods do not have endpoints/results that correspond to the preamble of the claims; thus, it doesn't appear that objective of the method is obtained...there is no specific assay and measurements to obtain this information [that the compound modulates efp activity]..." (Office Action, page 4). Although Applicants disagree, to advance prosecution of the present application, the claims have been amended to further recite "wherein an increase in said intrinsic fluorescence of efp indicates that said compound increases said activity" (amended claims 4 and 5) and "wherein a decrease in said intrinsic fluorescence of efp indicates that said compound decreases said activity" (amended claims 142 and 143), thus, providing a clause that relates back to the preamble. One can calculate the degree of which the test compound can bind to efp by comparing the changed fluorescence reading when the test compound is added, with the baseline fluorescence (see, for example, Example 2 of the specification).

In sum, one skilled in the art is able to practice Applicants' claimed invention without being required to perform undue experimentation. Indeed, the Office Action fails to identify any particular experimentation, let alone undue experimentation, that is required to carry out the claimed methods. The reasoning provided in the Office Action is merely conclusory statements wholly unsupported by any evidence. The Examples disclosed in the specification provide the required "sufficient information" to enable one of ordinary skill to practice the invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 112, first paragraph be withdrawn.

III. Conclusion

The present claims are in condition for allowance and an early notice of the same is earnestly solicited. If, for any reason, the present application fails to proceed to allowance, the Examiner is encouraged to contact Applicants' undersigned representative at (215) 665-2158.

Respectfully submitted,

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